

PLATYCEPHALUS CHAULIODOUS, A NEW FLATHEAD
FISH FROM THE EASTERN INDIAN OCEAN
(TELEOSTEI: PLATYCEPHALIDAE)

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Abstract. — A new platycephalid, *Platycephalus chauliodous*, is described from seven specimens collected near Perth, Western Australia. This species is distinguished from other members of *Platycephalus* Bloch, 1795 and from *Neoplatycephalus* Castelnau, 1872 by its distinctive color pattern, by the unusual combination of fourteen dorsal and thirteen anal-fin rays, by the large canines on tooth-bearing bones and by the low number (59–65) of pored lateral line scales.

In 1973, a large specimen (453 mm SL) of an undescribed species of Platycephalidae was speared near Carnac Island, Western Australia. The specimen was frozen and transported to the Western Australian Museum where Dr. J. Barry Hutchins, recognizing the specimen as being distinctive, sent it to the author. Since 1973, six additional specimens have been found, all coming from Western Australian localities near Perth. The new species is described here and compared to congeners, as well as to the species currently assigned to *Neoplatycephalus* Castelnau, 1872. *Neoplatycephalus* has been variously recognized as a genus (Waite 1921, Hutchins & Swainston 1985) or as a subgenus of *Platycephalus* (McCulloch 1927, Knapp 1987). Recent electrophoretic and morphological studies of the relationships within the family Platycephalidae indicate that *Neoplatycephalus* merits generic recognition (C. P. Keenan, pers. comm.).

The new species shares the specialized feature of vomerine teeth in a single, crescent-shaped patch with species of *Platycephalus* and *Neoplatycephalus*. It shares the presence of large canine teeth with *Neoplatycephalus*. According to May (1986), the three species currently placed in *Neoplatycephalus* are taken in temperate waters of southern Australia at the following depths:

N. aurimaculatus, 80–100 m; *N. conatus*, 70–420 m; and *N. richardsoni*, 10–170 m, sometimes entering coastal bays. Depth records for the new species indicate that it is taken from 0–40 m, usually 10 m or less. On the basis of the large canine teeth and the close proximity of its geographic range to that of *Neoplatycephalus*, one might regard the new species as a shallow water representative of *Neoplatycephalus*. However, comparison of the new species with those of *Neoplatycephalus* (Table 1) indicates that major differences exist.

The new species has a lower number of lateral line scales (59–65), a combination of 14(15) dorsal-fin rays and 13(14) anal-fin rays, interorbital space larger than orbit diameter (adults), preocular spine lacking, preopercular spines about equal in length, suborbital bone more narrowly bicarinate, usually 11 branched caudal-fin rays, and the rear edge of the maxilla is below or in front of the anterior margin of the orbit. Also, the diameter of the round eye of the new species is small, going 1½ to 2 times into the diameter of the oval-shaped eye found in the species of *Neoplatycephalus*. Finally, the large canine teeth on the dentary of the new species become smaller anteriorly and are lacking from the anteriormost quarter of the jaw. Canines on the lower jaw of *Neoplaty-*

Table 1.—Comparison of characters between *Platycephalus chauliodous* and species of *Neoplathycephalus*. Mean or usual condition given in parentheses.

Character	<i>P. chauliodous</i>	<i>N. aurimaculatus</i>	<i>N. conatus</i>	<i>N. richardsoni</i>
Pored lateral-line scales	59–65 (63)	81–85	72–78	64–74 (69)
Anal-fin rays	13–14 (13)	13–14 (14)	13–14 (14)	14
Gill rakers	2+9–10 (9)	1+5–7	1–2+7–10	3+10–12
Large teeth at front of dentary	absent	present	present	present
Interorbital width (adults)	larger than eye	smaller	smaller	smaller
Length of preopercular spines	about equal	lower longest	lower longest	lower longest
Branched caudal-fin rays	usually 11	usually 12	12–13	12–13
Suborbital bone bicarinate	narrowly	broadly	broadly	broadly
Rear edge of maxilla	to front of eye	past front of eye	past front of eye	past front of eye
Top of head	naked	scaly	scaly	scaly
Umbraculum	broadly lobate	simple lobe	simple lobe	simple lobe

cephalus species are more or less evenly spaced along the entire length of the jaw.

The differences between the new species and the three species of *Neoplathycephalus* are significant. Additionally, *N. aurimaculatus*, *N. conatus*, and *N. richardsoni* appear to form a natural group. Therefore, the new species is here provisionally placed in *Platycephalus*.

Methods.—Counts and measurements follow those of Knapp (1973), except that standard (SL), head and snout lengths listed here, were measured from the tip of the snout. Type material is deposited at the following institutions: American Museum of Natural History (AMNH); Australian Museum, Sydney (AMS); National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM); and the Western Australian Museum, Perth (WAM). Other institutions listed are: Academy of Natural Sciences, Philadelphia (ANSP); California Academy of Sciences (CAS-SU); Commonwealth Science and Industrial Research Organization, Hobart, Tasmania (CSIRO); National Museum of Victoria, Melbourne (NMV); Naturhistorisches Museum, Wien 1, Austria (NMW); Northern Territory Museum of Arts and Sciences, Darwin (NTM); Staatliches Museum für Naturkunde in Stuttgart (SMNS); and

Universität Humboldt, Berlin (ZMB). Material of other species used for comparative purposes in text and tables appears in Appendix 1.

Platycephalus chauliodous, new species
Figs. 1–3, Tables 1–3

Platycephalus sp. Hutchins & Thompson, 1983:28, 78, fig. 115.

Neoplathycephalus sp. Hutchins & Swainston, 1985:46, 127, fig. 196.

Material examined.—Holotype, AMS I.20231-007 (304 mm SL), Western Australia, Cockburn Sound, ½ km S Carnac Island, 6–7 m, Barry C. Russell, 27 Mar 1978.

Six paratypes: Western Australia: WAM P24172-001 (453), Cockburn Sound, Carnac Island, 3 mi off Fremantle, ca. 10 m, B. Paxman, 30 Dec 1973. WAM P25798-008 (66), Eagle Bay, 33°33.5'S, 115°04'E, 0–4 m, Gerald R. Allen and party, 21 Oct 1976. WAM P29879.001 (332), 31°50'S, 115°44'E, ca. 40 m, Ian Beaumont, Dec 1988. WAM P29944.001 (399), Cowaramup Beach, 33°47'S, 115°00'E, ca. 8 m, D. Axcell, 19 Feb 1989. USNM 307398 (77), off Garden Island, 32°12'S, 115°40'E, G. R. Allen, 10 Apr 1976. AMNH 48856 (216), Cape Freycinet, 0–6 m, Donn E. Rosen and party, 22 Mar 19. Material of other species

used for comparative purposes in text and tables appears in Appendix 1. As Matsubara & Ochiai (1955) and Hughes (1981) have pointed out, the configuration of pored lateral line scales in *Platycephalidae* can be unique to a species or similar in several closely related species. Descriptions of new species of flatheads should include illustrations of the pored scales whenever possible.

Diagnosis. — A species tentatively assigned to the genus *Platycephalus* Bloch, with 14(15) dorsal-fin rays and 13(14) anal-fin rays, a low number (59–65) of pored lateral line scales, and large canines on tooth-bearing bones in the mouth.

Description. — Values for holotype in parentheses. Dorsal-fin rays 0–I, VII, I, 14–15(14); anal-fin rays 13–14(13); pectoral-fin rays 19–20(19), usually 1+13+5; pelvic-fin rays I, 5; pored lateral line scales 59–65(64), lacking spines; scales above lateral line slanting downward and backward 90–100(100); diagonal scales 14–18(14); interpelvic scales 31–35(31); gill rakers 2+9–10(2+9); branched caudal-fin rays 10–11(11). Measurements for the holotype and paratypes appear in Table 2. Least interorbital width greater than diameter of eye in specimens 216 mm SL and larger, only about $\frac{1}{2}$ eye diameter in specimens 77 mm SL and smaller; first dorsal spine triangular, about as long as spine base is wide, length 16–24(16) times into second spine in specimens 216 mm SL and greater. Nape covered with scales, top of head naked, a few embedded scales on opercle and cheek. Preocular spine lacking. Infraorbital ridge low, ending in a fan-shaped series of 3–4 short ridges; several other low ridges on head behind infraorbital ridge. Suborbital ridge smooth. Two preopercular spines present of about equal length. Intraopercular flap absent, membrane with scalloped edge. Lower opercular spine short, upper opercular spine concealed under skin. Rear edge of maxilla in front of or just below anterior margin of orbit. Upper jaw with several rows of small

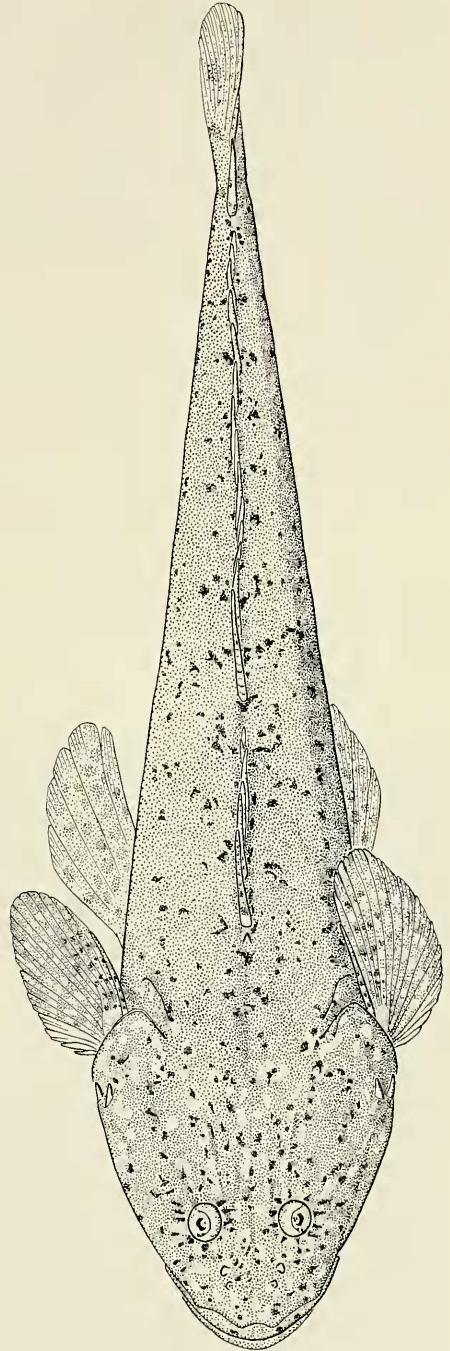


Fig. 1. *Platycephalus chauliodous*, new species, AMS I.20231-007, holotype, 304 mm SL, dorsal view, from off Carnac I., Western Australia.

Table 2.—Proportional measurements of *Platycephalus chauliodous* expressed in thousandths of standard length.

Character	Holotype	Paratypes	
		Range	Mean
Standard length (mm)	304.0	66.0–453.0	257.2
Head length	319.1	300.0–333.3	316.2
Snout length	92.4	88.5–110.4	101.0
Orbit diameter (greatest)	34.2	31.6–68.2	43.8
Interorbital width (least)	47.0	31.8–50.4	43.7
First dorsal spine length	5.9	4.6–36.4	15.1
Second dorsal spine length	95.4	88.7–136.4	113.6

caniniform teeth, inner row slightly enlarged, and one or two strong canines on each side of symphysis. Dentary with a row of large canines posteriorly, decreasing in size to small caniniform teeth at front of jaw. Vomer crescent-shaped, with one or two stout canines distally, a row of small canines crossing the head. Palatines with five or six large canines. Posterior nostril tubular, anterior nostril tubular with an elongate fleshy flap on posterior margin. Eye small and round. Umbraculum large, with

a lobate margin. Pored lateral line scales with a single pore to exterior (Fig. 2).

Color in alcohol.—From the holotype except where indicated otherwise. Dorsum yellowish, with scattered, irregularly-shaped dark spots numerous on head, less abundant posteriorly. Top of head with numerous whitish spots, and some extending posteriorly on body in USNM 307398 (Fig. 3). Dorsal fin with alternating light and dark bands on anterior 3–4 spines, membranes hyaline. Fin rays of second dorsal-fin with light and dark bands, membranes hyaline. Upper pectoral-fin rays with series of small light spots that form seven or eight vertical bands, membranes hyaline. Pelvic and caudal fins with a series of dark blotches on rays, membranes hyaline.

Color of freshly frozen specimen.—The following description, provided by Dr. J. Barry Hutchins, was taken from WAM P24172-001, as it thawed from being freshly frozen. “Base red-brown with dark spots on head and back. Sides yellow-brown, with dark brown spots, ventral surface white. Dorsal fin hyaline with rays and spines spotted brownish-pink. Anal fin white with rays spotted orange. Pectoral rays spotted red-brown superiorly, inferiorly orange-brown. Ventrals orange-brown with faint brown-

Table 3.—Comparison of selected meristic characters in eleven species of *Platycephalus*. Means are shown in parentheses.

Species	Pored lateral line scales	Gill rakers	Dorsal-fin rays	Anal-fin rays
<i>P. arenarius</i>	69–83	3–4+9–12	13	13
<i>P. bassensis</i>	71–82	4–5+13–15	14	14
<i>P. caeruleopunctatus</i>	83–91	4–6+13–17	14	14
<i>P. chauliodous</i>	59–65 (63)	2+9–10	14	13
<i>P. endrachtensis</i>	67–81	1–2+6–9	13	13
<i>P. fuscus</i>	72–78	2–3+7–10	13	13
<i>P. indicus*</i>	62–69 (65)	2–3+6–9	13	13
<i>P. laevigatus</i>	81–92	2+7–8	14	14–15
<i>P. longispinis</i>	70–82	5–7+14–19	14	14
<i>P. marmoratus</i>	64–70 (66)	2+7–9	13	13
<i>P. speculator</i>	80–93	3–4+10–12	14	14

* The status of *P. indicus* (Linnaeus, 1758) in Australian waters is unclear and data presented for that species are taken from Matsubara & Ochiai (1955).

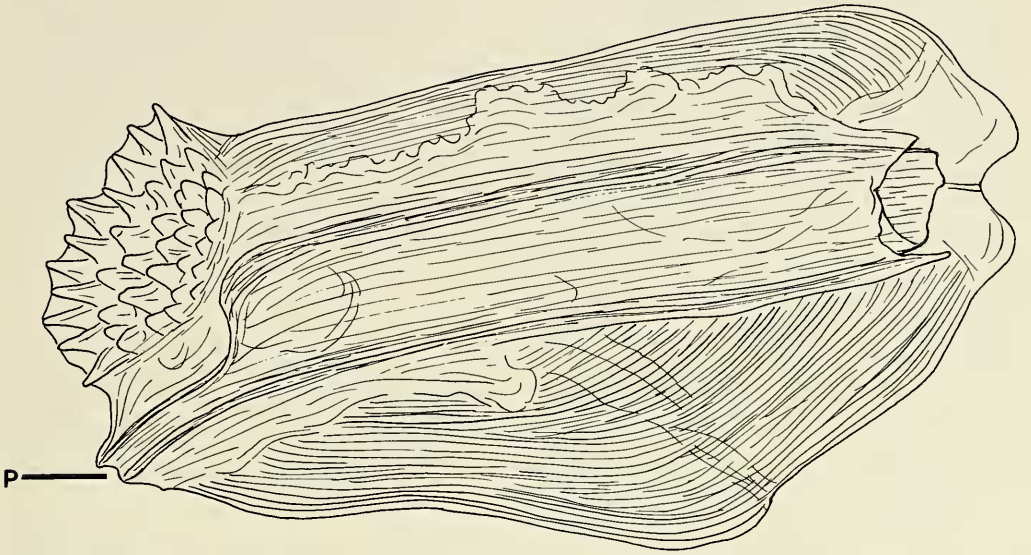


Fig. 2. Pored lateral line scale from *Platycephalus chauliodous*, AMNH 48856, paratype, 216 mm SL, 20th scale behind head, right side, scale 5.2 mm in length. Abbreviation: P-pore opening to exterior.



Fig. 3. *Platycephalus chauliodous*, USNM 307398, paratype, 77 mm SL, dorsal view.

green cross bars (approximately 8–9). Caudal-fin rays red-brown, hyaline connections. Cheeks ventrally bright yellow.”

Distribution.—Infrequently taken at shallow coastal reefs from just north of Rottnest Island to Cape Freycinet, southern Western Australia (Hutchins & Swainston 1985).

Etymology.—The specific name *chauliodous*, from the Greek, in reference to the prominent canine teeth.

Remarks.—Comparison of *P. chauliodous* with the other ten species of *Platycephalus* is shown in Table 3. Although there is an overlap in number of pored lateral line scales with *P. marmoratus* and *P. indicus*, *P. chauliodous*, with a mean count of 63 has the lowest number of scales. It is the only member of the genus which usually has one fewer anal-fin rays than dorsal-fin rays. Occasional specimens may have one fin ray more or less than the usual number for that species but these are exceptional. Also, no other *Platycephalus* has large canine teeth positioned along the jaws (*P. indicus* has slightly enlarged teeth at the symphysis of the jaws). In life, the orange-red color of the dorsum is unique in the genus to *P. chauliodous*. Juvenile stages of *P. marmoratus* may have a brownish dorsum marbled with white but no reddish color is present.

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Appendix 1

Material of Other Species Examined

Neoplatycephalus aurimaculatus (Knapp, 1987): NMV 1404, 1 (290 mm), Tasmania, Bass Strait, 3 Feb 1981. AMS I.26328-001, 1 (333), Victoria, Bass Strait. NMV A3733, 2 (215–232), Victoria, Port Phillip Bay, 30 Mar 1971. USNM 280181, 1 (318), Bass Strait, Feb 1981. *Neoplatycephalus conatus* (Waite & McCulloch, 1915): AMS I.18710-007, 2 (160–174), Western Australia, off Point Culver, Feb 1976. AMS I.12393-94, 2 (226–236), South Australia, Investigator Strait. AMS I.13649, 1 (247), Great Australian Bight, west from meridian of Eucla, March 1912. AMS I.13650, 1 (268), same data as AMS I.13649. AMS I.12343, 1 (178), South Australia, Great Australian Bight. *Neoplatycephalus richardsoni* (Castelnau, 1872): AMS IB.507, 1 (442), Tasmania, Wineglass Bay. AMS IB.21166, 1 (248), Victoria, Lakes Entrance. NMV A1347, 1 (247), Tasmania, Bass Strait, 4 Nov 1980. *Platycephalus arenarius* Ramsey & Ogilby, 1886: AMS E.1581, 6 (81–102), Queensland, 22 mi SW Double Island point, 29 Jun 1910. AMS E.1581, 6 (81–102), Queensland, 22 mi SW Double Island point, 29 Jun 1910. AMS I.11033, 2 (189–225), Queensland, Wide Bay. WAM P25354-043, 1 (290), Western Australia, Monte Bello Islands,